



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/081,517	02/21/2002	Walter Brandenburger	22750/527	1022
26646	7590	07/15/2004	EXAMINER	
KENYON & KENYON ONE BROADWAY NEW YORK, NY 10004			ROSENBERG, LAURA B	
			ART UNIT	PAPER NUMBER

3616

DATE MAILED: 07/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/081,517

Applicant(s)

BRANDENBURGER, WALTER

Examiner

Laura B Rosenberg

Art Unit

3616

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 09 April 2004 has been entered.

Specification

2. The disclosure is objected to because of the following informalities: "axial" should be --axle-- (page 4, line 30). Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1 and 3-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Martin et al. (5,709,394) in view of Heyring (5,480,188), further in view of Enke et al. (3,752,497). In regards to claims 1, 3, 6-9, and 12, Martin et al. disclose a hydropneumatic, level-regulated axle suspension for front (#56) and rear (#55) axles on a vehicle (#1) comprising double-acting hydraulic suspension cylinders (#17, 18, 23,

24), wherein the axle suspension for the front axle and the rear axle is designed as a reversible double-function axle suspension, so that each axle (#55, 56) is switchable as an oscillating axle in a cylinder transverse combination, in which the cylinder spaces on a given axle communicate and the annuli on the same axle communicate (best seen in figures 3, 5), or as a stabilizing axle (best seen in figure 4; column 4, lines 3-25, 59-67; column 5, lines 1-8, 26-61), the switching being alternating so that switching one axle as an oscillating axle results in simultaneous switching of the other axle as a stabilizing axle (best seen in figure 4). Martin et al. do not specifically disclose the cylinders connected to pressure accumulators or hydraulic shock absorber elements inserted into connected lines to the accumulators. Heyring teaches a hydropneumatic, level-regulated axle suspension for front and rear axles on a vehicle (#5) comprising double-acting hydraulic suspension cylinders (#13, 14, 17, 18, 41- 44), whose cylinder spaces (#13a, 14a, 17a, 18a, 41a- 44a) are each connected to a first pressure accumulator (#21, 22, 25, 26, 50-53) and an additional pressure accumulator (#21, 22, 25- 27, 30, 50-55) and whose annuli on the piston side (13b, 14b, 17b, 18b, 41b- 44b) are connected to a second pressure accumulator (#27, 30, 54, 55). In addition, hydraulic shock absorber elements are inserted into connecting lines to the accumulators (column 6, lines 1-4). It would have been obvious to one skilled in the art at the time that the invention was made to modify the suspension of Martin et al. such that it comprised accumulators and hydraulic shock absorbing elements as claimed in view of the teachings of Heyring so as to provide resilience in the suspension and resist shock loading in the event that the axles are thrust down (Heyring: column 5, lines 32-36, 42-

Art Unit: 3616

47; column 6, lines 1-4). In addition, while Martin et al. do disclose a stabilizing axle, the stabilizing axle is not in a cross combination in which the cylinder space of each cylinder on a given axle communicates with the annulus of the other cylinder on the same axle. Enke et al. teach hydropneumatic, level-regulated axle suspension for front (indicated by "F" in the figure) and rear (opposite axle from "F" in the figure) axles on a vehicle comprising hydraulic double-acting suspension cylinders (#10a, 10b, 11a, 11b) whose cylinder spaces (#22a, 22b, 23a, 23b) are each connected to a first pressure accumulator (#20a, 20b, 21a, 21b), wherein each axle suspension is designed as a stabilizing axle in a cross combination, in which the cylinder space of each cylinder on a given axle communicates with the annulus of the other cylinder on the same axle (best seen in the figure). It would have been obvious to one skilled in the art at the time that the invention was made to modify the stabilizing axle of Martin et al. such that it comprised a cross combination as claimed in view of the teachings of Enke et al. so as to stabilize the vehicle body against curve-tilting with a simplified construction that is reliable in operation, can use existing parts in an effective manner, and does not require a torsion rod stabilizer (Enke et al.: column 2, lines 20-29).

In regards to claim 4, Martin et al. disclose the axles being switched to oscillating axles when a load is reduced on that axle and a stabilizing axle when a load is increased on that axle. Specifically, when the vehicle encounters uneven terrain, the load is increase on one of the axles, that axle becoming the stabilizing axle while the other axle becomes the oscillating axle.

In regards to claims 5 and 11, Martin et al. disclose the axle suspension of the stabilizing axle being blocked (column 4, lines 59-67; column 5, lines 25-33). Martin et al. does not disclose the axles suspensions being blocked by isolating the suspension accumulator. Heyring teaches isolating the suspension accumulators when under an increased load and needed to stabilize the axle (column 5, lines 57-67). It would have been obvious to one skilled in the art at the time that the invention was made to modify the suspension of Martin et al. such that it comprised an isolation of the accumulator as claimed in view of the teachings of Heyring so as to reduce the resilience of the axle when it is under an increase load (Heyring: column 5, lines 57-67).

In regards to claim 10, Martin et al. disclose the cylinder space of one suspension cylinder being connected to the annulus of another suspension cylinder (via connecting lines #30, 31). Martin et al. does not disclose an accumulator of the cylinder space connectable to the annulus of another suspension cylinder. Heyring teaches the cylinder space (#13a, 14a, 17a, 18a) of one suspension cylinder and the associated accumulator (#21, 22, 25, 26) being connectable to the annulus (#13b, 14b, 17b, 18b) of another suspension cylinder. It would have been obvious to one skilled in the art at the time that the invention was made to modify the suspension of Martin et al. such that it comprised a connection between cylinder spaces, accumulators, and annulus spaces as claimed in view of the teachings of Heyring so as to control pressure between cylinders through the use of the accumulators.

In regards to claim 13, Martin et al. disclose switching from oscillating axle suspension to stabilizing axle suspension being done as a function of the pressure in

the cylinder spaces. Specifically, the pressure is determined and controlled by the hydraulic control means (#26), the pressure relief valve (#45), the electrical command means (#49), and the sensor (#91).

In regards to claim 14, Martin et al. disclose the switching being done at approximately the same pressures in the cylinder spaces and the annuli of the suspension cylinders. Specifically, the electrical command means (#49) and the sensor (#91) control the control valves (#38, 39, 85) and the control valves control the connection and disconnections of the cylinders. Thus, the switching would always be accomplished at approximately the same pressure.

In regards to claim 15, Martin et al. disclose the design of the front and rear axle suspensions being identical.

In regards to claim 16, Martin et al. disclose that the axles (#55, 56) may be pressed against stops (#A, B, D, E) for the purpose of blocking the suspension and they may be secured.

In regards to claim 17, Martin et al. disclose the blocked cylinders being regulated and kept at the switchover pressure level by a pressure regulating valve (#38, 39, 85). Martin et al. do not disclose using this valve in the same manner for an accumulator. Heyring teaches pressure regulating means (column 6, lines 5-38) for use with accumulators. It would have been obvious to one skilled in the art at the time that the invention was made to modify the suspension of Martin et al. such that it comprised a pressure regulating valve as claimed in view of the teachings of Heyring so as to vary or stop the flow of fluid between relevant cylinders (Heyring: column 6, lines 14-21).

Response to Arguments

5. In regards to the applicant's arguments filed 09 April 2004, the examiner appreciates the clarification of the "transverse combination" and "cross combination" features, and she has provided a new prior art rejection based upon the amended independent claim. In addition, the examiner would like to point out that the use of accumulators in hydropneumatic axle suspension systems is old and well known in the art, and the incorporation of the Heyring reference in the prior art rejection simply shows one example of accumulators that are arranged similar to those in the applicant's claimed invention.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Tschanz discloses a hydropneumatic suspension system with a transverse combination. Capgras, Fujii, Lund, and Lin disclose a hydropneumatic suspension system with a cross combination. MacLeod discloses a hydropneumatic suspension system with a variety of configurations. Burke et al. disclose a roll control system with pressure control means. Ney et al. disclose a hydropneumatic suspension system with shock absorbers located between the cylinders and the accumulators. Allen et al. disclose a hydropneumatic suspension system with both transverse and cross combinations, both oscillation and stabilizing axles, and a "locked out" feature.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Laura B Rosenberg whose telephone number is (703) 305-3135. The examiner can normally be reached on Monday-Friday 7:00am-3:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Dickson can be reached on (703) 308-2089. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

LBR

Laura B. Rosenberg

 7/12/04
PETER C. ENGLISH
PRIMARY EXAMINER